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10/612,544	07/01/2003	Thomas E. Pearson	42P13560D	3569
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BLAKELY SOKOLOFF TAYLOR & ZAFMAN			GRAYBILL, DAVID E	
12400 WILSHIRE BOULEVARD			ART UNIT	
SEVENTH FLOOR			PAPER NUMBER	
LOS ANGELES, CA 90025-1030			2822	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/612,544	Applicant(s) PEARSON ET AL.	
	Examiner David E. Graybill	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,5-17 and 19-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-17 and 19-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4-28-5 has been entered.

The amendment to the claims filed on 4-28-5 does not comply with the requirements of 37 CFR 1.121(c) because, in claim 1, the text of the added subject matter “, the plurality of rows all being defined parallel to a coordinate axis” is not shown by underlining. Amendments to the claims filed on or after July 30, 2003 must comply with 37 CFR 1.121(c) which states:

(c) *Claims*. Amendments to a claim must be made by rewriting the entire claim with all changes (e.g., additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

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(1) *Claim listing.* All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled" or "not entered" may be aggregated into one statement (e.g., Claims 1-5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(2) *When claim text with markings is required.* All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. Only claims having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."

(3) *When claim text in clean version is required.* The text of all pending claims not being currently amended shall be presented in the claim listing in clean version, i.e., without any markings in the presentation of text. The presentation of a clean version of any claim having the status of "original," "withdrawn" or "previously presented" will constitute an assertion that it has not been changed relative to the immediate prior version, except to omit markings that may have been present in the immediate prior version of the claims of the status of "withdrawn" or "previously presented." Any claim added by amendment must be indicated with the status of "new" and presented in clean version, i.e., without any underlining.

(4) *When claim text shall not be presented; canceling a claim.*

(i) No claim text shall be presented for any claim in the claim listing with the status of "canceled" or "not entered."

(ii) Cancellation of a claim shall be effected by an instruction to cancel a particular claim number. Identifying the status of a claim in the claim listing as "canceled" will constitute an instruction to cancel the claim.

(5) *Reinstatement of previously canceled claim.* A claim which was previously canceled may be reinstated only by adding the claim as a "new" claim with a new claim number.

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Because the response appears to be bona fide, but through an apparent oversight or inadvertence the response is non-compliant, and in order to continue to afford applicant the benefit of compact prosecution, the requirement to comply with the response within a one month time limit is waived, the amendment is entered, and the claims are examined on the merits.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-14 are is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, there is insufficient antecedent basis for the language, "pair of adjacent rows."

In the rejections infra, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15, 16, 19, 20, 23, 24, 26, 29 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Okada (6534726).

At column 9, line 5 to column 10, line 2; and column 11, line 1 to column 14, line 41, Okada discloses the following:

A method of manufacturing an interposer, the method comprising:  
creating a plurality of via holes 22/52,65 through a circuit board substrate 21 from a first surface of the substrate to a second surface of the substrate;  
creating a solid conductive column 57 through each of the via holes, the conductive column forming an electrical path from the first surface to the second surface; forming grooves 53 in the first surface and the second surface of the substrate between the via holes; coating the first surface and the second surface with a conductive material 55, 56; coupling the interposer between an electronic component package 12 and a circuit board

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5; wherein the electronic component package includes a semiconductor die and the circuit board is a motherboard.

A method of manufacturing an interposer, the method comprising: creating a plurality of via holes through a circuit board substrate from a first surface of the substrate to a second surface of the substrate; creating a conductive path 54 through each of the via holes from the first surface to the second surface; and forming a plurality of grooves in the first surface and the second surface of the substrate between the via holes; wherein said forming a plurality of grooves comprises: forming a first plurality of grooves (any two grooves) in the first surface of the substrate; forming a second plurality of grooves (any two grooves other than the first plurality) in the first surface of the substrate, perpendicular to the first plurality of grooves; forming a third plurality of grooves in the second surface of the substrate (the first plurality of grooves); and forming a fourth plurality of grooves (the second plurality of grooves) in the second surface of the substrate, perpendicular to the third plurality of grooves; wherein said creating a conductive path through each of the via holes comprises forming a thin conductive layer on a surface of each of the via holes; wherein said creating

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a conductive path through each of the via holes comprises forming a solid conductive column 57 through each of the via holes; coupling the interposer between an electronic component package and a circuit board.

To further clarify the disclosure of forming grooves 53 in the first surface and the second surface of the substrate, the end portions of the grooves (illustrated but not labeled) are formed in the first and second surface of the substrate.

To further clarify the disclosure of forming grooves 53 between the via holes, the via holes are between the via holes and the grooves are in the via holes; hence the grooves are in and between the via holes.

To further clarify the disclosure of forming a second plurality of grooves perpendicular to the first plurality of grooves; and forming a fourth plurality of grooves perpendicular to the third plurality of grooves, it is noted that the grooves are three dimensional; therefore, each groove extends in a dimension perpendicular to every other groove.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been



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obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8, 12-14, 17 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (6534726).

Okada is applied as it is applied to claims 15, 16, 19, 20, 23, 24, 26, 29 and 32 supra.

Further, as cited supra, Okada discloses a method of manufacturing an interposer, the method comprising: creating a plurality of rows (illustrated in FIG.9 in the plane of the paper as the two parallel outermost vertical rows defining the outermost vertical sides of the four substrate members 11) of

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via holes 22/52,65 through a circuit board substrate from a first surface of the substrate to a second surface of the substrate, the first surface and the second surface being coated with a conductive material 55, 56; forming a conductive layer 54 in each of the via holes to provide a conduction path through each of the via holes from the conductive material on the first surface to the conductive material on the second surface; selectively removing "etching" some of the conductive material from the first surface to form a plurality of traces 55 on the first surface and the second surface, each trace in electrical contact with the conductive layer in at least one of the via holes; and severing the substrate to produce a plurality of individual substrate members, by cutting the substrate through the middle of the via holes in each row of via holes and between every pair (the single pair) of via holes along a particular axis (the vertical axis); forming grooves in the first surface and the second surface of the substrate between the via holes; wherein the conductive layer is a surface layer applied in each of the via holes; coupling at least one of the individual substrate members between an electronic component package and a circuit board; selectively removing some of the conductive material from the first surface to form a plurality of

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traces on the first surface and the second surface, each trace in electrical contact with the conductive column of one of the via holes; severing the substrate to produce a plurality of beams 11/51, by cutting the substrate through the middle of the via holes in each row of via holes and between each row of via holes along a particular axis.

To further clarify, Okada discloses beams 11/51 because Okada discloses principal horizontal supporting members 11/51.

However, Okada does not appear to explicitly disclose elongate beams.

Notwithstanding, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose this particular shape because applicant has not disclosed that, in view of the applied prior art, the shape is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the process would possess utility using another shape. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459,

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105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Also, Okada does not appear to explicitly disclose removing some of the conductive material from the second surface to form a plurality of traces on the second surface.

Nonetheless, as set forth supra, Okada discloses forming a plurality of traces 56 on the second surface, and further discloses removing "etching" some of the conductive material from the first surface to form a plurality of traces 55 on the first surface. Moreover, it would have been obvious to remove the conductive material from the second surface by "etching" to form the plurality of traces on the second surface.

Claims 12, 15, 16, 19, 20, 23, 24, 26, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada as applied to claims 8, 12-17, 19, 20, 23, 24, 26, 27, 29 and 32 supra, and further in combination with Higashiguchi (5760469).

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In the remarks filed on 4-28-5 applicant insists on a unique interpretation of the groove limitations allegedly not taught by Okada. Therefore, the claims are additionally rejected over Higashiguchi.

In particular, at column 5, line 57 to column 6, line 16, Higashiguchi discloses forming a plurality of grooves 44 in the first surface and the second surface of the substrate 30 between the via holes 40; wherein said forming a plurality of grooves comprises: forming a first plurality of grooves in the first surface of the substrate; forming a second plurality of grooves in the first surface of the substrate, perpendicular to the first plurality of grooves; forming a third plurality of grooves in the second surface of the substrate; and forming a fourth plurality of grooves in the second surface of the substrate, perpendicular to the third plurality of grooves. Furthermore, it would have been obvious to combine this disclosure of Higashiguchi with the disclosure of Okada because it would improve the interposer reliability.

Claims 1, 5, 6, 7, 9-11, 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada as applied to claims 8, 12-17, 19, 20, 23, 24, 26, 27, 29 and 32 supra, and further in combination with Mori (6287949).

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As cited supra, Okada discloses a method comprising: (a) creating a plurality of rows (illustrated in FIG.9 in the plane of the paper as the two parallel outermost vertical rows defining the outermost vertical sides of the four substrate members 11) of via holes 22/52,65 through a circuit board substrate 21 from a first surface 51A of the substrate to a second surface 51B of the substrate, the plurality of rows all being defined parallel to a coordinate axis (the vertical axis); (b) forming a conductive layer 55, 56 on the first surface and on the second surface; (c) forming a conductive path 54 through each of the via holes from the first surface to the second surface; (d) severing the substrate through each of the plurality of rows of via holes and between each row of the plurality of rows of via holes along a coordinate axis (the vertical axis) to produce a plurality of substrate members 11/51; each of the elongate substrate members having a first surface formed from a portion of the first surface of the circuit board substrate; forming a plurality of elongate grooves in the first surface and in the second surface of the substrate, prior to said severing; wherein said grooves are formed parallel to each other between rows of via holes.

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However, Okada does not appear to explicitly disclose elongate substrate members.

Notwithstanding, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose this particular shape because applicant has not disclosed that, in view of the applied prior art, the shape is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the process would possess utility using another shape. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Also, Okada does not appear to explicitly disclose affixing two or more elongate substrate members created as recited in said (a), (b), (c) and (d)

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to form an interposer with a plurality of conductive vias arranged in a two-dimensional array, the array being defined substantially in a plane parallel to the first surfaces of the elongate substrate members; affixing two or more of the plurality of individual substrate members together to form an interposer as a substantially planar array; affixing two or more of the plurality of beams together in an array configuration to form the interposer.

Regardless, at column 3, lines 19-31; and column 4, line 19 to column 6, line 11, Mori discloses affixing two or more elongate substrate members 32<sub>2</sub>, 32<sub>6</sub> created as recited in said (a), (b), (c) and (d) to form an interposer with a plurality of conductive vias 33 arranged in a two-dimensional array, the array being defined substantially in a plane parallel to the first surfaces of the elongate substrate members; affixing two or more of the plurality of individual substrate members together to form an interposer as a substantially planar array; affixing two or more of the plurality of beams 32<sub>2</sub>, 32<sub>6</sub> together in an array configuration to form the interposer. In addition, it would have been obvious to combine this disclosure of Mori with the disclosure of Okada because it would maximize operational speed.



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Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada and Mori as applied to claims 6 and 7 supra, and further in combination with Higashiguchi (5760469).

Higashiguchi is applied as it is applied to claims 12, 15, 16, 19, 20, 23, 24, 26, 29 and 32 supra.

Claims 21, 22, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada as applied to claims 15 and 23 supra, and further in combination with Lin (5222014).

Okada does not appear to explicitly disclose wherein each of the conductive columns has a composition of tin (Sn) and lead (Pb); wherein the composition comprises at least 81% lead (Pb).

Still, at column 3, lines 1-26; column 3, line 58 to column 2, line 49; column 5, lines 29-32; and column 6, lines 22-59, Lin discloses wherein each of the conductive "columns" 23 has a composition of tin (Sn) and lead (Pb); wherein the composition comprises at least 81% lead (Pb).

To further clarify the disclosure wherein the composition comprises at least 81% lead, Lin discloses, "This solder, for example, may be of an 80/20 Pb/Sn composition or any other workable solder alloy composition," and a

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composition comprising at least 81% lead is a workable solder alloy composition.

In any case, Lin discloses that lead concentration is a result-effective variable. Moreover, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed lead concentration limitation because applicant has not disclosed that, in view of the applied prior art, the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the process would possess utility using another concentration. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. '[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the

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optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III), “Applicant can rebut a prima facie case of obviousness based on overlapping ranges by showing the criticality of the claimed range. ‘The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.’ In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g) for a discussion of criticality and unexpected results.”

Claims 21, 22, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada and Lin as applied to claims 21, 22, 30 and 31 supra, and further in combination with Higashiguchi (5760469).

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Higashiguchi is applied as it is applied to claims 12, 15, 16, 19, 20, 23, 24, 26, 29 and 32 supra.

Applicant's amendment and remarks filed 4-28-5 have been fully considered, are addressed by the rejections supra, and are further addressed infra.

Applicant asserts, "No one who has even a marginal understanding of English could reasonably consider the grooves 53 in Okada (see Fig. 16) to be formed 'in' the first and second surfaces 51A and 51B of the substrate."

This assertion is respectfully deemed unpersuasive because it is unsupported by proof or a showing of facts; hence, it essentially amounts to mere conjecture. Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989) (statement in publication dismissing the "preliminary identification of a human b - NGF - like molecule" in the prior art, even if considered to be an expert opinion, was inadequate to overcome the rejection based on that prior art because there was no factual evidence supporting the statement); In re Beattie, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992) (declarations of seven persons skilled in the art offering opinion evidence praising the merits of the claimed invention were found to have little value because of a

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lack of factual support); Ex parte George, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991) (conclusory statements that results were "unexpected," unsupported by objective factual evidence, were considered but were not found to be of substantial evidentiary value).

Relatedly, applicant contends, "the grooves 53 In Okada are formed 'between' the first surface 51A and the second surface 51B; or stated another way, they are formed 'from' the first surface 51A 'to' the second surface 51B. That is different from being formed 'in' the first and second surfaces."

This contention is respectfully deemed unpersuasive because the alleged disclosure of Okada that the grooves are formed between the first and second surface is not incompatible with the disclosure of the instant claim limitations for which Okada is relied on in the rejection.

Applicant further argues, "The end faces 51C clearly cannot be read on the first or second surfaces of claim 15."

This argument is respectfully deemed unpersuasive because Okada is not relied on in the rejection for this disclosure.

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Also, applicant states, "Claim 15 requires that the via holes are formed from the first surface to the second surface, but that the grooves are formed in the first and second surfaces."

This statement is respectfully traversed because the claims are not so limited, and Okada is not necessarily relied on for this disclosure. In any case, this statement appears to contradict applicant's other relevant arguments, and appears to support the rejection of the claims over Okada.

In addition, applicant argues, "Applicants respectfully submits [sic] that claims cannot be given an interpretation during examination which is unreasonable in light of both the Applicant's disclosure and the ordinary meaning of the claim language."

This argument is deemed persuasive.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

**For information on the status of this application applicant should check PAIR:**

Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**Alternatively, applicant may contact the File Information Unit at (703) 308-2733. Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.**

Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.  
The fax phone number for group 2800 is (703) 872-9306.



David E. Graybill  
Primary Examiner  
Art Unit 2822

D.G.  
9-Jul-05